WHAT IS CLAIMED IS:

1. A control method of a rotational speed of a screw for an injection molding machine, wherein rotation of a motor is transmitted the screw disposed within a cylinder member attached to an injection frame, comprising the steps of:

(a) sending an electric current to a stator attached to the injection frame;

(b) rotating a rotor which is disposed radially inward of the stator, and which includes a hollow and cylindrical member and a magnet attached to the hollow and cylindrical member; and

(c) transmitting rotation of the rotor to the screw.

2. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 1,

wherein the rotation of the rotor is transmitted to the screw via a rotary slide member, so that the screw is rotated, and a resin entered to the injection molding machine is moved into and melted in the cylinder member.

3. The control method of a rotational speed of a

screw for an injection molding machine, as claimed in claim 2, further comprising the step of:

(d) rotating so that the rotary slide member retreats.

4. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 2, further comprising the step of:

(e) generating a force of restraint to the rotor after the resin is melted, so that the screw is caused to advance in a state where the screw is not rotated.

5. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 1, further comprising the step of:

(f) rotating an element to be detected upon the rotation of the rotor, and detecting a rotational speed of the rotor by a detecting element disposed in opposition to the element to be detected, and thereby a feedback control is performed.

6. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 5,

wherein the element to be detected does not come in contact with the detecting element.

7. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 5,

wherein the detecting element includes a magnet, and converts distortion of magnetic lines of force generated by rotating recess and projection configurations formed at the element to be detected to an electric signal.

8. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 1,

wherein a ball screw is disposed radially inward of the rotor, and

the hollow and cylindrical member is disposed radially outward of the ball screw.

9. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 2,

wherein the rotary slide member is disposed radially inward of the rotor, and

the hollow and cylindrical member is disposed radially outward of the rotary slide member.

10. A control method of a rotational speed of a screw for an injection molding machine, wherein rotation of a motor is transmitted the screw disposed within a cylinder member attached to an injection frame, comprising the steps of:

(a) sending an electric current to a stator attached to the injection frame;

(b) rotating a rotor which is disposed radially inward of the stator, the screw, and an element to be detected; and

(c) detecting a rotational speed of the screw by a detecting element disposed in opposition to the element to be detected and in a manner where the detecting element does not come in contact with the element to be detected.

11. The control method of a rotational speed of a screw for an injection molding machine, as claimed in claim 10,

wherein the rotor includes a hollow and cylindrical member, and a magnet attached to the hollow and cylindrical member.